

REMARKS

The applicant appreciates the Examiner's thorough examination of the application and requests reexamination and reconsideration of the application in view of the following remarks.

The Examiner rejects claims 1, 3-6, 9, 11-14, 26, and 27 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Pat. No. 6,420,008 to *Lewis et al.* in view of U.S. Pat. No. 6,785,144 to *Akram* and further in view of U.S. Pat. No. 6,412,701 to *Kohama et al.* The Examiner further rejects claim 10 as allegedly being unpatentable over *Lewis et al.* in view of *Akram* in view of *Kohama et al.* and further in view of U.S. Pat. No. 4,774,434 to *Bennion*.

REQUEST FOR TELEPHONE CONFERENCE

As a preliminary matter, if the Examiner remains unpersuaded by this Response, the applicant requests a telephone conference with the Examiner. The current Office Action is virtually a duplicate of the previous Office Action, even though the applicant submitted amendments and additional arguments in Response to the previous Office Action.

If possible, the applicants would like to have the basis of the rejections further clarified. In that way, the applicants can more particularly address such rejections, in an attempt to expedite and advance prosecution.

THE CITED REFERENCES FAIL TO TEACH THE APPLICANTS' CLAIMED INVENTION AND/OR ELEMENTS CONNECTED THEREWITH, AND TEACH AWAY

The Cited References Fail To Teach The Applicants' Claimed Elements

Lewis teaches sticking a PC board 14 to the back 16 of a sticky flexible sheet 12 having

peel off backings 20 and 22, then sticking the other side of the sticky sheet to a shirt. See e.g. *Lewis* Fig. 1.

Lewis does not teach adhering the PC board itself to the shirt, much less welding it onto the shirt. In fact, everything but the PC board sticks to the shirt. There is no contact between the PC board and the shirt. The PC board only sticks to the back side of the sticky flexible sheet, and the sticky sheet then sticks to the shirt. This is in sharp contrast to the applicants' claim 1.

Simply adding the conductive paths and circuit traces disclosed by *Akram* to *Lewis*' PC board fails to teach the applicant's invention which, when structured as claimed, acts as a viable improvement to the previously known garments with conductive fibers integral with the fabric or garments with rigid, bulky and uncomfortable circuit boards.

Moreover, adding the secondary reference *Akram* to *Lewis* fails to overcome *Lewis*' failure to disclose a circuit which is itself affixed to a fabric, namely by welding onto it as claimed.

Further, adding the tertiary reference *Kohama* to *Akram* and *Lewis* still fails to overcome *Lewis* and *Akram*'s combined failure to disclose a circuit which is itself welded to a fabric.

In fact, instead of a (flexible) substrate of a (flexible) circuit welded onto a fabric as claimed by the applicants, *Kohama* teaches that non-woven fabric layers constitute the flexible so-called substrate. See e.g. *Kohama* column 10, lines 26-27.

Kohama further teaches that an IC chip 1 and coils 2 are sandwiched in between flexible fabric layers or embedded in such a fabric layer. See e.g. *Kohama* Figs. 2, 9 and 11B.

Kohama teaches a tool to melt coil and chip connections (see e.g. *Kohama* Figs. 5A-7). *Kohama* also teaches hot pressing layers of fabric or meltable sheets (Figs. 10, 11C, 12C, 14, 15), as well as injection molding (Figs. 13A-13E) and roll pressing (Figs. 16, 17). These teachings are not welding of a flexible circuit substrate onto a fabric, however. To the extent *Kohama* teaches

welding, it (also) is to melt the connection between the IC chip 1 and the coil 2 (not welding of a flexible substrate of a flexible circuit onto a fabric as claimed by the applicants). See e.g. *Kohama* column 13, line 61 – column 14, line 4; see also column 15, lines 3-12.

Kohama also teaches a flexible IC module 10, but this module consists of this non-woven fabric 3 surrounding the IC chip 1 and coils 2. See e.g. *Kohama* Figs. 14 and 15. *Kohama* does not teach that the IC chip is flexible, or that it includes a flexible substrate, or that an IC chip substrate is welded onto fabric.

In summary, *Kohama* (like *Lewis* and *Akram* fail) fails to teach that the flexible substrate of a flexible circuit is welded onto fabric. The fact that the words “fabric” and “weld” both appear in the body of the *Kohama* patent in no way discloses, teaches, or suggests the applicants’ claimed elements.

Thus, *Kohama*’s failure adds to the primary (*Lewis*) and secondary (*Akram*) references’ failures to teach the elements of the applicants’ claimed invention.

The Cited References Teach “Ideas” At Best, *Not* The Applicants’ Claimed Elements,
And In Fact Teach Away From The Applicants’ Claimed Invention

The applicants submit that the applicant has not merely claimed the “ideas” of fabric, flexible circuits and welding.

Reducing a claimed invention to an “idea”, and then determining patentability of that “idea”, is error. Analysis properly begins with the claims, for they measure and define the invention. See *Jones v. Hardy*, 727 F.2d 1524, 220 USPQ 1021, 1024 (Fed.Cir. 1984).

The claims must be considered “as a whole”. See MPEP §2141.02 I. (THE CLAIMED INVENTION AS A WHOLE MUST BE CONSIDERED).

Also, the cited references must be considered in their entirety. See MPEP §2141.02 VI (PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS).

The applicants respectfully submit that the isolated disclosures found in the cited references to support the rejections do not teach – and in fact teach away from – the invention, and must be taken in the context of the entirety of the teachings of those cited references.

When the applicants' claims are considered, and the cited references are considered in their entirety, the applicants submit that the rejections based on the currently cited references cannot stand.

As noted above, *Lewis* fails to teach the elements of the applicants' invention as claimed in claim 1.

Also, the applicants claim a solution which includes welding a flexible circuit to a fabric, which eliminates the need for complex wire fabric designs and soldering, or the need to cut fabric, for example.

In contrast, *Lewis* criticizes, discredits, or otherwise discourages affixing an item to an article of clothing in a way which is not readily removable. Thus, *Lewis* teaches away from the applicants' claimed invention. The fact that *Lewis* criticizes, discredits, or otherwise discourages affixing items by other than readily removable means constitutes teaching away from such solutions. See e.g. *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ 2d 1141, 1146 (Fed. Cir. 2004) (prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of the alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed).

And it is well established that “teaching away” by a reference is an important indicium of

non-obviousness. See e.g. W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303, 311 (Fed. Cir. 1983) (in considering claims under §103, “the district court erred ... in considering claims in less than their entirety ... and in considering the references in less than their entirety, i.e., in disregarding disclosures in the references that diverge from and teach away from the invention at hand”) (with emphasis added).

The applicants also respectfully submit that the portion of the Office Action rejection based on *Kohama* makes it clear that an “idea” – without consideration of the entirety of the *Kohama*’s teachings – serves as a basis for the rejection:

The disclosure of *Kohama et al.* teaches ultrasonic welding as a means for securing fabrics to circuits.

The applicant is not merely claiming the idea of welding as a means for securing fabrics to circuits.

The applicant is claiming a fabric, a flexible circuit including traces and pads on a flexible substrate, the substrate welded onto the fabric by a thermoplastic reflow process.

In contrast (and discussed in more detail above), *Kohama* fails to disclose a flexible substrate. Instead, *Kohama* discloses chip 1. *Kohama* fails to disclose welding a flexible substrate onto fabric. Instead, *Kohama* discloses a chip in between flexible fabric layers, where the fabric layers constitute the so-called substrate. *Kohama* fails to disclose welding a (flexible) substrate onto the fabric. Instead, *Kohama* discloses welding the coils to the IC chip to establish a connection.

These teachings of *Kohama* are in contrast to the applicants’ claimed elements.

Moreover, the applicant respectfully submits that to conclude that adding the teachings of *Kohama* to the teachings of *Lewis* and *Akram* to reject the applicant’s claimed invention can only be based on hindsight analysis – starting with the applicant’s claims as a blueprint.

In other words, the applicants respectfully submit that the Examiner has used the applicants' claims "as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight". See In re Dembiczak, 175 F.3d 994, 50 USPQ 2d 1614, 1617 (Fed. Cir. 1999) abrogated on other grounds, In re Gartside, 203 F.3d 1305, 52 USPQ 2d 1769 (Fed. Cir. 2000) with citations and quotations omitted.

It is impermissible to simply pick isolated elements out of diverse prior art teachings. The law is clear that "one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention". See e.g. In re Fine, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988).

Accordingly, the applicants respectfully submit that claim 1 is in condition for allowance. For at least these reasons as well, the claims depending directly or indirectly from claim 1 (including claim 10) are also in condition for allowance.

With respect to the applicants' claim 26, it includes the recitation of a covering welded onto the fabric over the flex circuit and the at least one electronic component by a thermoplastic reflow process, wherein the flex circuit is in pressed engagement with the fabric and the covering.

Element 12 of *Kohama* is a non-woven fabric layer. It is not a covering as claimed. In any event, however, *Kohama* fails to teach that element 12 is (itself) welded onto a fabric (as discussed above) such that the circuit is in pressing engagement with fabric and the covering.

Accordingly, the applicants submit that claim 26 is also not obvious over the cited references.

CONCLUSION

Each of the Examiner's rejections has been addressed or traversed. It is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts at (781) 890-5678.

Respectfully submitted,



Thomas E. Thompson, Jr.
Reg. No. 47,136